Challenges in Educating 21st-Century Information Professionals

John Unsworth
October 9, 2010
Wuhan University

In a number of talks today, speakers have discussed the changes that are coming, and that have come, to library and information science education; some speakers have celebrated the changes they discuss, and others have decried them; some have reminded us of important knowledge from the past, and others of important challenges in the future. So, to begin this talk on educating future librarians, I would like to outline my general position on these issues. I believe it is necessary for our discipline to evolve, but I want to point out that evolution is not simply another word for change: evolution is a special case of transformation, in which the past is carried forward in a form that responds to changes in the environment. It's true that not all evolutionary transformations are successful, and it is also true that it is possible to survive over time without significantly evolving: sharks and horshoe crabs are examples of this. But the organisms that change their environment (for better or worse) are those that evolve: in other words, organisms and environments evolve in reciprocal relationship. Or, as Senior Expert Meng Guangjun told us earlier this afternoon, "it is highly commendable to review and amend our programs from time to time, in response to changing circumstances."

So, let's begin this talk about the future by talking about the past. For more than a century, library and information science research and education have helped societies around the world to cope with the rapid changes in knowledge management brought on by industrialization, and then by the information age. At both Wuhan University and the University of Illinois, there is also a long and proud tradition of librarianship and library education as a public service, and both programs have made special contributions to the education of librarians for academic research libraries and to producing faculty who teach library science (and

later, information science) in research universities. Both have also had considerable historical impact on the evolution of libraries and library science education, and both seem likely to continue to do so.

In 2009, Wuhan's School of Information Management became the first Chinese institution to join the iSchools Consortium, a group of more than 25 of the leading schools of information, most with a heritage of library and information science programs, all with doctoral programs and substantial research activity, and all focused on the important intersection of people, information, and technology. Many of the iSchools—like SIM—also publish leading journals, and all of them have forward-looking educational programs. The leadership caucus in the Consortium includes Wuhan, Pittsburgh University and the University of Illinois, and Ron Larsen and I have each led the organization for two-year terms. Harry Bruce, the dean of the School of Information at the University of Washington, currently chairs the Consortium. The group holds bi-monthly conference calls, undertakes special projects to promote awareness of iSchools, and organizes an annual conference (hosted last year at Illinois, and this year at the University of Washington).

One significant challenge for the future of library science education is to preserve the independence of our information schools and to assert the importance of the information professions. The Boone Library School began as an independent entity, not affiliated with any university, and for years, Wood and then Seng fought to keep it that way; it has evolved into a robust and important part of Wuhan University, but it will face new challenges in the future. At Illinois, we have had similar struggles to retain independence, as have most of the iSchools, at one time or another. This struggle has provided me with a keen appreciation for the early history of Boone, and it gives us all of us a common cause.[1]

[1] Cheryl Boettcher, "Samuel T.Y. Seng and the Boone Library School," *Libraries & Culture* 24.3 (Summer 1989), 280-281.

There's also a challenge from the profession itself, as some in the library world resist inevitable changes in their practices, a resistance that is often expressed as a desire to prescribe a curriculum, or to make invidious distinctions between the "real" world of practice and the "academic" world of research and theory. As Cheryl Boettcher notes "Recurring complaints from librarians in the field about the ivory tower of library education [which] point to the split between theory and practice inherent in the American academic model" (289). This kind of challenge too often comes from professional organizations and accrediting agencies, who see it as their role to ensure that educational traditions are enforced, even as the profession they represent is being revolutionized.

Finally, from our peers in other parts of the university we experience an academic challenge to our independence and self-determination. As we follow the trajectory of our long-standing interests in new ways of manipulating and extracting information—interests represented for example by the career of Wilf Lancaster—we cross into territory claimed by newer disciplines like computer science, and there are sometimes border struggles. Scarcity of resources will, of necessity, intensify these struggles, and information science programs are not always the larger or the wealthier combatant; on the other hand, we are often underestimated by people who have a limited understanding of what libraries and librarianship are all about.

One of the problems we face, as schools of information, is that "what we are about" is all kinds of information, in all kinds of settings, being used for all kinds of purposes, with all kinds of technology, by all kinds of people. That's a lot of territory to cover when you have ten, or twenty, or thirty core faculty. In fact, none of us can really cover it, especially at the level of faculty research, and so all of us choose to specialize in some areas. Those choices make each of our schools unique, and they mean we compete less, and can collaborate more. On the other hand, we do still need to provide comprehensive education to our students. In North America, we do this, generally, by hiring practitioners as part-time faculty to cover important areas

of practice that don't coincide with our areas of research specialization. But we also need to engage part-time and adjunct faculty in a dialogue with the full-time research faculty: this is key to a coherent curriculum, but it must be a conversation among equals, with an understanding and respect for the particular kind of knowledge each party possesses. We also make a place in our schools for other categories of faculty, whose principal interest is in the management of research projects, engaging students in hands-on learning, and the application of research to current problems in business, government, and community settings.

Increasingly, innovation comes from outside the university, from commerce, but also from cultural production, from politics, and from social networks. The challenge this presents to library and information science is not only to contribute its own innovations, in order to demonstrate the value of what we do, but also to keep up with those contributed by others, so that our students are appropriately prepared for the world in which they will work—not limited to learning about the past, but aware of what the creators and seekers of information already know and what they will need in the future, so that, as information professionals, they can develop the collections, services, and practices for that future. To accomplish this, we try to discover, infer, and explain the principles that guide practice, and we teach those to our students, so that during a lifetime of practice, they are equipped to understand (and also to invent) new practices, as instances of abiding principles.

For our students graduating now, these changes in practice, in the information profession, will not be insignificant, or infrequent, or inconsequential. To take just one example, consider the digitization of all the books in the library—as, for example, through the Million Book Project or through Google Books. For all intents and purposes, this will be accomplished very soon, and then we can expect to see fundamental changes in what people can and will do in the library, especially in research libraries. My own background, as a faculty member, is in American literature, and my current research interests include the applications of text-mining to literary research: I have spent the last four years, and will spend the next two,

overseeing multi-institutional and multi-disciplinary research groups that are working out an understanding of how the digital library of the future needs to be constructed and configured to support this new kind of humanities research. In order to do new kinds of scholarship, humanities researchers are going to rely on new kinds of librarians, and those librarians will need to understand statistical and computational methods, natural language processing, corpus linguistics, and digital humanities, and they'll need to be prepared to consult on those topics.

There are a number of other new roles for librarians and information managers, who may be asked to design ontologies or taxonomies (for scholarship, for science, or for business), or run social-computational systems that support data communities of various sorts, or run institutional repositories that become the collective memory of universities, companies, governments, and other organizations. They may be asked to act as publishers, or find new ways to connect disparate data resources—for example, maps, biographical dictionaries, newspapers, and digital image collections—in order to make possible new kinds of exploration and discovery. And contrary to what we heard from Wilf Lancaster this morning, librarians will have to engage these technologies **because** of the needs of users, and not instead of them.

In the U.S., we sometimes hear the term "embedded librarian," meaning the librarian as a team-member in mutli-disciplinary (or multi-divisional) teams that tackle problems which exceed the capabilities of any one person. The scenarios I've just outlined all call for embedded librarians. There are at least three challenges here: one is to prepare our students with the appropriate expertise, the next is to coach them to assert that expertise as part of the team, and the third is to educate their colleagues to recognize and appreciate what they bring to the team. Again, contrary to Lancaster, I see the need to educate our colleagues as a recognition that none of us really deeply understands the nature of his colleagues' expertise, a problem compounded in our case by the fact that too often, our colleagues mistakenly believe they already understand what librarians do and what libraries are.

As the digitization of resources and the networking of access increases, the value of the librarian should increase, not decrease, but librarians need to make sure that this happens. The librarians of the future that I look forward to will serve as equals, working alongside colleagues in a collective enterprise that tackles problems whose scope and breadth will necessarily require many different kinds of expertise, including expertise in information.

So, I'd like to talk now for a bit about the programs we offer, at Illinois, to prepare students for information professions in the 21st century. I'll focus first on our general areas of study and then on a particular specialization in the Masters program, the concentration in data curation.

The Masters program at Illinois requires only two specific courses—one on information organization and access, and one on libraries, information, and society. Beyond those, students develop the rest of their curriculum in consultation with an advisor, but they are generally encouraged to take courses in reference and information services, in the administration of libraries and information centers, and in cataloging and classification. Students needing introductory courses in the area of information technology are encouraged to consider our introduction to network systems and the course in Foundations of Information Processing. Beyond that, students are presented with advising options that group courses according to professional goals or topics of interest. Professional groupings include general librarianship, public librarianship, children's and school librarianship, academic and special librarianship, or information science and library technology. Topical areas include the organization of information, management and consulting for information systems and services, access (to collections, by users), informatics and information science, digital libraries, and literacies. All of these tracks and the courses that constitute them are offered both on campus and online: at present, we have about 300 students enrolled in each delivery option, and we encourage students in one option to explore the other as opportunity permits or necessity requires. An important part of the program for students on campus is often a

graduate assistantship in the university library: we have what I would say is an unusually cooperative relationship with the library, and we work together to keep as many of these assistantships as possible available to our students. Given that, it is probably not a coincidence that roughly 40% of our students go on to work in academic research libraries.

The specialization in data curation was recently developed, with the support of the Institute of Museum and Library Services, and it allows for an emphasis either on scientific data or on cultural data. Our web site tells prospective students and employers that in this specialization, we

> focus on data collection and management, knowledge representation, digital preservation and archiving, data standards, and policy. Data curation is the active and on-going management of data through its lifecycle of interest and usefulness to scholarship, science, and education. Data curation activities enable data discovery and retrieval, maintain data quality, add value, and provide for re-use over time, and this new field includes authentication, archiving, management, preservation, retrieval, and representation.

Students in this concentration must take the same two foundational courses required of all our Masters students, but beyond those, they have three other required courses, in Foundations of Data Curation, Digital Preservation, and Systems Analysis and Management. Thereafter, they may choose from a number of electives, depending on their interests. Those electives include information processing, digital libraries, document modeling, metadata, ontology development, knowledge representation and information organization, information storage and retrieval, electronic publishing, document processing, museum informatics, archives, preservation, biological informatics, information transfer and collaboration, and a number of others.

We are already seeing considerable interest in hiring the graduates of this program, in national laboratories, in corporations and government organizations, and in science libraries, because all of these organizations already face a deluge of scientific

data, and they already realize they need people with specialized education and training in order to meet their responsibilities to their users, their funders, and their charters. Employers may not think of these people as librarians, but that's what they are, and we recognize, in our requirements for the data curation specialization, that in order to do their jobs well, these librarians need a thorough grounding in the principles of library science and in the history of information organizations, as well as an education that encompasses new technologies, new data formats, and new user requirements and behaviors.

The iSchools deans, as a leadership group, are an important resource in meeting the challenge of educating librarians and other information professionals for the 21st century. Together, we have a responsibility to promote the successful evolution of our discipline, our schools, our students, and our faculty. We have important opportunities before us, too, and some of these we can only seize if we work together. It is true that we sometimes compete (for faculty or students or funding), but more often we help one another to navigate difficult circumstances within and outside our universities. For example, each of the iSchool deans' bi-monthly conference calls ends with an invitation to raise urgent matters with which the other deans could assist. We are stronger and more effective, in our own universities and as a group, because we share information—which is, after all, what we teach others to do. We discuss many different kinds of benchmarking and planning data, and we share strategies for managing our Schools, securing resources, and fulfilling our missions in research, education, and service. With the addition of Wuhan to the group, we have broader, more international, more global perspectives on these issues, and that will help us to gain critical distance on our own environments, as we come to realize that some of the things we take for granted are not always and everywhere true, and so could be different in our case, if we were moved to change them.

Thank you for your attention, and if you'd like to be in touch, my email address is: unsworth@illinois.edu